



CR1-2-3B-FS(-L)

Commercial Series Refrigerators



CR1-2-3B-FS(-L)

10/14

Item # 13274

Hoshizaki America, Inc. reserves the right to change specifications without notice.

Item #

Project:

Qty:

*AutoCad available on KCL

CRB-FS Dimensions W x D x H

1 Section - 27.5" x 33.6" x 79.63"*

2 Section - 55" x 33.6" x 79.63"*

3 Section - 83" x 33.6" x 79.63"*

*with 4" casters

Electrical/Refrigeration

Voltage 115/60/1

HACR Breaker

1 & 2 Section - 15.0

3 Section - 20.0

Electrical Connection (NEMA)

1 & 2 Section - 5-15P

3 Section - 5-20P

Voltage Range 104-126

Ambient Temp. Range 45°-100°F

Control Setpoint Range 34° to 52°F

*Refrigerant R-134a

Warranty

Valid in United States, Canada, Puerto Rico, and U.S. Territories. Contact factory for warranty in other countries.

• **Three Year** - Parts & Labor on entire machine.

• **Five Year** - Parts on: Compressor.

Options

• Door reversal kit

• Additional epoxy shelves

• Stainless steel shelves

• Combination universal tray/pan slides

• Foot pedal door opener

• Air filter



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618 Hwy. 74 S., Peachtree City, GA 30269

TEL 800-438-6087

FAX 800-345-1325

www.hoshizaki.com



- Stainless steel exterior front and sides
- Energy efficient, vacuum formed, seamless, one piece ABS interior liner
- Refrigerant flow is controlled with a TXV expansion valve
- Unique "ducted" air distribution system
- Solid state digital controller with temperature alarms and LED display (Fahrenheit or Celsius)
- Cabinet and doors are insulated with 2-3/8" of R-134a, CFC free, foamed in place polyurethane
- Doors are constructed of stainless steel exterior, an ABS interior liner and are standard with locks
- Exclusive "stepped" door design to protect recessed door gasket
- Spring assisted self closing doors with stay open feature
- Sturdy 8 gauge stainless steel hinge plate with welded hinge pin
- One piece, full length, extruded aluminum flush mount door handle
- Field reversible doors (with optional kit)
- Enamel coated evaporator coil
- Automatic hot gas condensate evaporator
- Stainless steel shelf supports
- (3) Epoxy coated wire shelves per section adjustable 1" on center
- Standard with 4" factory installed casters (two with brakes)
- Stackable (two units high) to conserve warehouse floor space
- Three years parts and labor warranty
- Five year compressor warranty
- 8 ft. cord and plug

* CR2B-FS is ENERGY STAR qualified

Dimensions / Capacity

Model #	One Section CR1B-FS(-L)	Two Section CR2B-FS	Three Section CR3B-FS	
Nominal Storage Capacity (CF)	23.3 ft ³	51.0 ft ³	74.3 ft ³	
Interior Storage Capacity (CF) (AHAM)	20.9 ft ³	47.2 ft ³	68.2 ft ³	
Overall Width x Depth	27.5" x 33.6"	55" x 33.6"	83" x 33.6"	
Height (including 4" casters)	79.63"	79.63"	79.63"	
Door Opening Width x Height	22.8" x 59.6"	22.8" x 59.6"	22.8" x 59.6"	
Depth with Door open at 90°	59.6"	59.6"	59.6"	
Adjustable Shelves	3	6	6 (Left)	3 (Right)
Shelf Dimensions (W x D)	21.25" x 26"	23.9" x 24.6"	23.9" x 24.6"	21.25" x 26"
Crated Shipping Weight	345 lbs	550 lbs	880 lbs	
Crated Height x Width x Depth	83" x 31.5" x 39.5"	83" x 59" x 39.5"	83" x 90.5" x 39.5"	

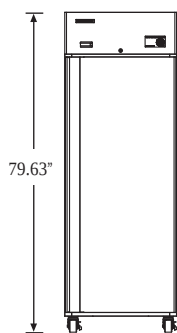
Electrical & Refrigeration Data

Model #	One Section CR1B-FS(-L)	Two Section CR2B-FS	Three Section CR3B-FS	
Amperage	3.7	7.0	12.0	
Energy Consumption (kwh/day) ENERGY STAR	2.52	3.05	5.57	
Heat Rejection (BTU/Hr.) @ NSF	450	866	866 (Left)	450 (Right)
Approx. Nominal Compres. BTU/HR(HP)	1625(.2HP)	2373(.25+HP)	2373(.25+HP)	1625(.2HP)

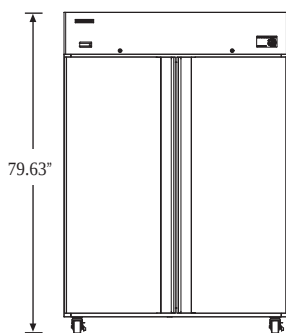


CRI-2-3B-FS(-L)

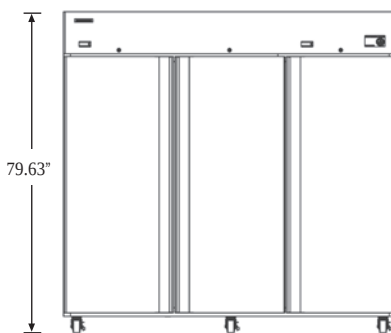
Commercial Series Refrigerators



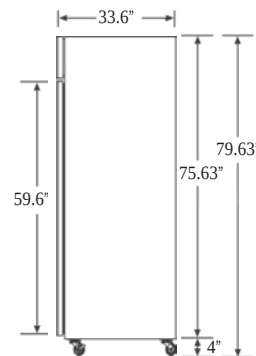
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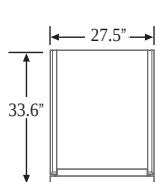
CRI2B-FS



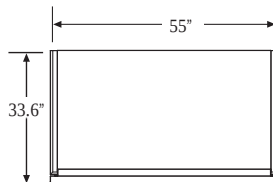
CRI3B-FS



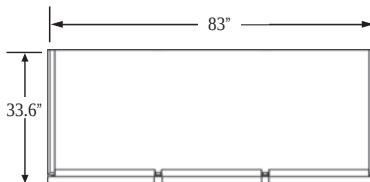
SIDE VIEW



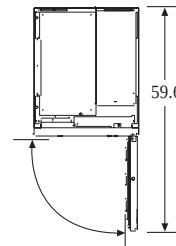
PLAN VIEW



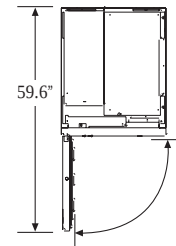
PLAN VIEW



PLAN VIEW



SWING
CRI1B-FS



SWING
CRI1B-FSL

Cabinet Construction

The exterior cabinet front, front panel, and sides, are constructed of high quality stainless steel. The exterior top, back and bottom are made from galvanized steel. The cabinet interior is constructed of a gray energy efficient, vacuum formed, seamless, one piece ABS liner. A unique "ducted" air flow system assures even temperature distribution throughout the cabinet. Three (3) heavy duty epoxy coated shelves per section are standard. Mounted on stainless steel pilasters, the shelves are adjustable in 1" increments. Cabinet walls and doors are insulated with 2-3/8" of environmentally friendly R-134A, CFC free, foamed in place polyurethane. Side walls are fully foamed for additional structure at the top of the cabinet. An interior light is automatically activated when doors are opened. 4" factory installed polyolefin, plated casters (two with brakes) are standard.

Door Construction

Doors are constructed of high grade stainless steel exterior, an ABS interior liner and are standard with locks. Hoshizaki's exclusive "stepped" design protects the recessed gasket while product is being removed from the cabinet. Doors are provided with a one piece, full length, extruded aluminum, flush mount handle and are mounted on eight (8) gauge stainless steel hinge plates with a welded hinge pin. Spring assisted self closing doors are equipped with a stay open feature past 90 degrees. Snap-in magnetic door gaskets are durable and easily removed for cleaning. Door hinging is field reversible (with an optional door reversal hinge kit).

Refrigeration System

The high efficiency, self contained refrigeration system is top mounted and easily accessible for service. The refrigeration system components are assembled on a high density expanded polypropylene platform that is removable from the main unit. A unique, ducted air flow system achieves uniform air distribution within the cabinet. The evaporator coil is enamel coated for extended life. Energy efficient, automatic hot gas condensate evaporator removes condensation. A thermostatic expansion valve system controls the flow of environmentally friendly R-134A refrigerant through the evaporator. Solid state, digital controls monitor the operation and performance of the refrigeration system. The controls also provide visual high and low temperature and high and low voltage alarms. The controller has a digital LED display and is adjustable to either Fahrenheit or Celsius. 115 volt units are equipped with an eight foot cord and plug (20.0 amps or less).

Hoshizaki America, Inc.

Commercial Series Refrigerated Kitchen Equipment

Models Reach-In B-Series



“A Superior Degree
of Reliability”

www.hoshizaki.com

INSTRUCTION MANUAL



Issued: 6-9-2014
Revised: 2-10-2015

⚠ WARNING

Only qualified service technicians should install and service the appliance. To obtain the name and phone number of your local Hoshizaki Certified Service Representative, visit www.hoshizaki.com. No installation or service should be undertaken until the technician has thoroughly read this Instruction Manual. Likewise, the owner/manager should not proceed to operate the appliance until the installer has instructed them on its proper operation. Failure to install, operate, and maintain the appliance in accordance with this manual may adversely affect safety, performance, component life, and warranty coverage. Proper installation is the responsibility of the installer. Product failure or property damage due to improper installation is not covered under warranty.

Hoshizaki provides this manual primarily to assist qualified service technicians in the installation, maintenance, and service of the appliance.

Should the reader have any questions or concerns which have not been satisfactorily addressed, please call, send an e-mail message, or write to the Hoshizaki Technical Support Department for assistance.

Phone: 1-800-233-1940; (770) 487-2331

Fax: 1-800-843-1056; (770) 487-3360

E-mail: techsupport@hoshizaki.com

HOSHIZAKI AMERICA, INC.

618 Highway 74 South

Peachtree City, GA 30269

Attn: Hoshizaki Technical Support Department

Web Site: www.hoshizaki.com

NOTE: To expedite assistance, all correspondence/communication **MUST** include the following information:

- Model Number _____
- Serial Number _____
- Complete and detailed explanation of the problem.

IMPORTANT

This manual should be read carefully before the appliance is installed and operated. Read the warnings and guidelines contained in this booklet carefully as they provide essential information for the continued safe use and maintenance of the appliance. Retain this booklet for any further reference that may be necessary.

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Important Safety Information

Throughout this manual, notices appear to bring your attention to situations which could result in death, serious injury, damage to the appliance, or damage to property.

⚠ WARNING Indicates a hazardous situation which could result in death or serious injury.

NOTICE Indicates a situation which could result in damage to the appliance or property.

IMPORTANT Indicates important information about the use and care of the appliance.

⚠ WARNING

This appliance should be destined only to the use for which it has been expressly conceived. Any other use should be considered improper and therefore dangerous. The manufacturer cannot be held responsible for injury or damage resulting from improper, incorrect, and unreasonable use. Failure to install, operate, and maintain the appliance in accordance with this manual will adversely affect safety, performance, component life, and warranty coverage.

To reduce the risk of death, electric shock, serious injury, or fire, follow basic precautions including the following:

- Only qualified service technicians should install and service this appliance.
- This appliance must be installed in accordance with applicable national, state, and local codes and regulations.
- To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.
- Make sure the power switch is in the "OFF" position before plugging in or unplugging the appliance to reduce the risk of electric shock.
- Before servicing, move the power switch to the "OFF" position. Unplug the appliance from the electrical outlet.
- This appliance requires an independent power supply of proper capacity. See the nameplate for electrical specifications. Failure to use an independent power supply of proper capacity can result in a tripped breaker, blown fuse, damage to existing wiring, or component failure. This could lead to heat generation or fire.
- **115VAC Models: THIS APPLIANCE MUST BE GROUNDED:** This appliance is equipped with a NEMA 5-15 three-prong grounding plug  to reduce the risk of potential shock hazards. It must be plugged into a properly grounded, independent 3-prong wall outlet. If the outlet is a 2-prong outlet, it is your personal responsibility to have a qualified electrician replace it with a properly grounded, independent 3-prong wall outlet. Do not remove the ground prong from the plug and do not use an adapter plug. Failure to follow these instructions may result in death, electric shock, or fire.

⚠ WARNING, continued

- **208-230VAC Models: THIS APPLIANCE MUST BE GROUNDED:** This appliance is equipped with a NEMA L14-20 four-prong locking, grounding plug  to reduce the risk of potential shock hazards. It must be plugged into a properly grounded, independent 4-prong wall outlet. If the outlet is a 3-prong outlet or a 4-prong non-locking outlet, it is your personal responsibility to have a qualified electrician replace it with a properly grounded, independent 4-prong locking wall outlet. Do not remove the ground prong from the plug and do not use an adapter plug. After plugging in, twist the plug clockwise to lock it into place. Failure to follow these instructions may result in death, electric shock, or fire.
- Do not use an extension cord.
- Do not use an appliance with a damaged power cord. The power cord should not be altered, jerked, bundled, weighed down, pinched, or tangled. Such actions could result in electric shock or fire. To unplug the appliance, be sure to pull the plug, not the cord, and do not jerk the cord. Before unplugging a 4-prong plug, rotate the plug counter-clockwise to unlock it.
- The GREEN ground wire in the factory-installed power cord is connected to the appliance. If it becomes necessary to remove or replace the power cord, be sure to connect the power cord's ground wire.
- Do not splash, pour, or spray water directly onto or into the appliance. This might cause short circuit, electric shock, corrosion, or failure.
- Do not make any alterations to the appliance. Alterations could result in electric shock, injury, fire, or damage to the appliance.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be properly supervised around this appliance.
- Do not climb, stand, or hang on the appliance or door or allow children or animals to do so. Do not climb into the appliance or allow children or animals to do so. Death or serious injury could occur or the appliance could be damaged.
- Be careful not to pinch fingers when opening and closing the doors. Be careful when opening and closing the doors when children are in the area.
- Open and close the doors with care. Doors opened too quickly or forcefully may cause injury or damage to the appliance or surrounding equipment.
- Do not use combustible spray or place volatile or flammable substances in or near the appliance. They might catch fire.
- Keep the area around the appliance clean. Dirt, dust, or insects in the appliance could cause harm to individuals or damage to the equipment.
- Do not throw anything onto the shelves or load any single shelf with more than 120 lb. (54.5 kg) of product. They might fall off and cause injury.
- Do not place anything on top of the appliance. Foreign objects or moisture could enter the appliance and result in electric shock or fire.

⚠ WARNING, continued

- This appliance is designed only for temporary storage of food. Employ sanitary methods. Use for any other purposes (for example, storage of chemicals or medical supplies such as vaccine and serum) could cause deterioration of stored items.
- Do not block the cabinet air inlet or outlet, otherwise cooling performance may be reduced.
- Do not tightly pack the cabinet. Allow some space between items to ensure good air flow. Also allow space between items and interior surfaces.
- Do not put warm or hot foods in the cabinet. Let them cool first, or they will raise the cabinet temperature and could deteriorate other foods in the cabinet or overload the appliance.
- All foods should be wrapped in plastic film or stored in sealed containers. Otherwise foods may dry up, pass their smells onto other foods, cause frost to develop, result in poor appliance performance, or increase the likelihood of cross-contamination. Certain dressings and food ingredients, if not stored in sealed containers, may accelerate corrosion of the evaporator, resulting in failure.
- Do not store items near the air outlet. They might freeze up and crack or break causing a risk of injury or contamination of other food.

NOTICE

- Protect the floor when moving the appliance to prevent damage to the floor.
- Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction. Do not place anything on top of the appliance. Blockage of airflow could negatively affect performance and damage the appliance.
- To prevent deformation or cracks, do not spray insecticide onto the plastic parts or let them come into contact with oil.
- To avoid damage to the gasket, use only the door handle when opening and closing.

I. Installation Instructions

⚠ WARNING

- This appliance must be installed in accordance with all applicable national, state, and local regulations.
- Appliance is heavy. Use care when lifting or positioning. Work in pairs when needed to prevent injury or damage.
- Do not tilt the appliance more than 45°.

A. Location

⚠ WARNING

- This appliance is not intended for outdoor use.
- Normal operating ambient temperature:
 - Refrigerators and Solid Door Freezers 45°F to 100°F (7°C to 38°C)
 - Glass Door Freezers 45°F to 80°F (7°C to 27°C)Operation of the appliance, for extended periods, outside of this normal temperature range may affect appliance performance.

For best operating results:

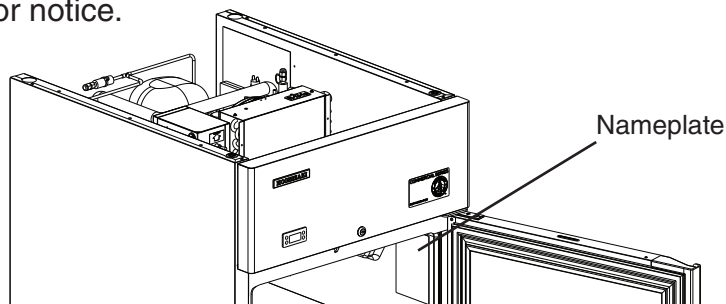
- The appliance should not be located next to ovens, grills, or other high heat producing equipment.
- The location should provide a firm and level foundation for the appliance.
- The appliance should not be located in a corrosive environment.
- Minimum Clearance:

Model	Side	Top	Rear
Refrigerators and Solid Door Freezers	3" (8 cm)	10" (25 cm)	0
Glass Door Freezers		12" (31 cm)	

B. Checks Before Installation

⚠ WARNING

Refer to the nameplate for electrical specifications. The nameplate is located on the right side wall of the cabinet interior. For more electrical connection details, see "I.F. Electrical Connection." We reserve the right to make specification and design changes without prior notice.



- Visually inspect the exterior of the shipping package and immediately report any damage to the carrier. Upon opening the package, any concealed damage should also be immediately reported to the carrier.
- Remove the shipping carton, tape, and packing material. Remove the protective plastic film from the exterior panels on all models and from the interior door panels on solid door models. If the appliance is exposed to the sun or to heat, remove the film after the appliance cools.
- Remove all accessory containers before discarding the packing materials. Dispose of all packing materials in a proper and environmentally responsible manner.
- Check for missing or damaged accessories.

C. Setup

1. Remove the Appliance from the Pallet

- 1) Move as close to the final location as possible.
- 2) Remove the pallet end board. See Fig. 1.
- 3) Remove the bolts securing the appliance to the pallet.
- 4) Secure the door(s) so that they will not swing open during removal from the pallet.
- 5) While supporting the appliance to keep it from tipping, slide the appliance off of the pallet and lower the casters to the floor.
NOTICE! Do not allow the door(s) to bear the weight of the appliance.

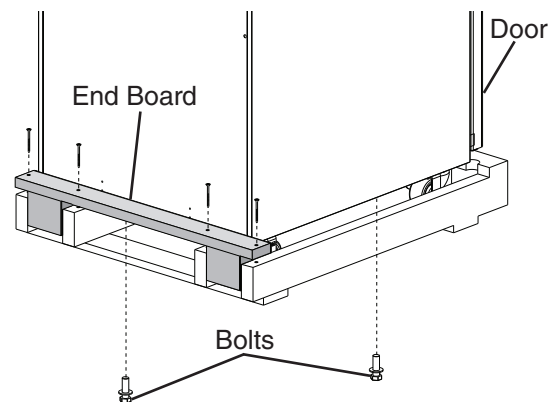


Fig. 1

2. Install the Optional Overflow Pan (if applicable)

An optional overflow pan kit, HS-3521, is available for the unlikely event that water cannot evaporate from the condensate pan at a high enough rate. To install the optional overflow pan, follow the directions below.

- 1) Attach the overflow pan brackets by engaging the tabs on the brackets through the holes in the bottom of the appliance and securing with the 4 mounting screws provided. See Fig. 2.
- 2) Slide the plastic overflow pan into place under the bushing on the bottom of the cabinet.

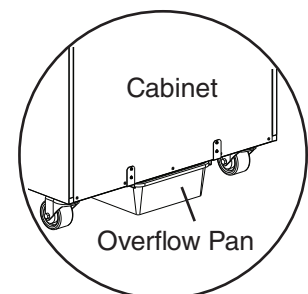
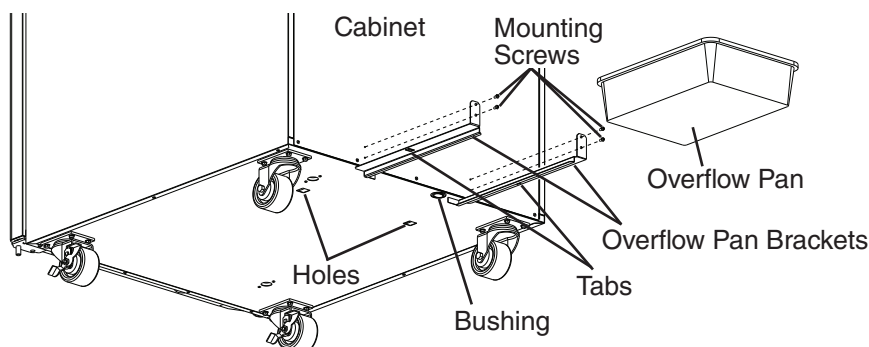


Fig. 2

3. Check the Refrigeration Circuit

- Visually check that the refrigerant lines do not rub or touch other lines or surfaces and that the condenser fan blade turns freely.
- Check that the compressor is snug on all mounting pads.

4. Position the Appliance and Lock the Front Casters

The front casters on the appliance are lockable. After positioning the appliance in its final location, lock the front casters.

5. Install the Shelves

Shelf support clips are provided in the accessory pack.

1. Place the shelf support clips into the pilasters (4 shelf support clips per shelf). Indexing holes are provided on the pilasters in evenly spaced intervals to assist you in positioning the support clips at the same height. See Fig. 3.
2. Place the shelves in position on the shelf support clips.

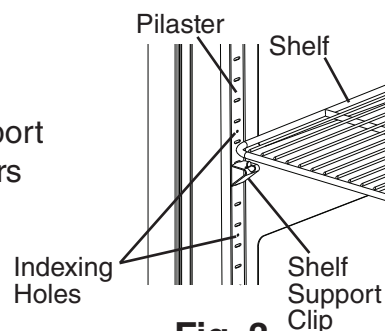


Fig. 3

D. Door Reversal

This appliance is provided with a cabinet design which, after being delivered to the installation location, permits changing of the door swing from left to right or right to left. To change the door swing, an HS kit from your local Hoshizaki distributor is required. See the table below. **NOTICE! Improper installation of the HS kit may result in the doors not closing completely and/or the gaskets not sealing correctly.** For further details, contact your local Hoshizaki distributor or Hoshizaki Technical Support at 1-800-233-1940.

Door Type	Convert	HS Kit Number
Glass	Right Hinge to Left Hinge	HS-5122
	Left Hinge to Right Hinge	HS-5123
Solid	Right Hinge to Left Hinge	HS-3725
	Left Hinge to Right Hinge	HS-3726

E. Door Alignment and Unit Leveling

If necessary, use the shim kit and shim kit instructions provided to align the doors or level the unit.

F. Electrical Connection

WARNING

- Electrical connection must meet national, state, and local electrical code requirements. Failure to meet these code requirements could result in death, electric shock, serious injury, fire, or severe damage to equipment.
 - This appliance requires an independent power supply of proper capacity. See the nameplate for electrical specifications. Failure to use an independent power supply of proper capacity can result in a tripped breaker, blown fuse, damage to existing wiring, or component failure. This could lead to heat generation or fire.
 - **115VAC Models: THIS APPLIANCE MUST BE GROUNDED:** This appliance is equipped with a NEMA 5-15 three-prong grounding plug  to reduce the risk of potential shock hazards. It must be plugged into a properly grounded, independent 3-prong wall outlet. If the outlet is a 2-prong outlet, it is your personal responsibility to have a qualified electrician replace it with a properly grounded, independent 3-prong wall outlet. Do not remove the ground prong from the plug and do not use an adapter plug. Failure to follow these instructions may result in death, electric shock, or fire.
 - **208/230VAC Models: THIS APPLIANCE MUST BE GROUNDED:** This appliance is equipped with a NEMA L14-20 four-prong locking, grounding plug  to reduce the risk of potential shock hazards. It must be plugged into a properly grounded, independent 4-prong wall outlet. If the outlet is a 3-prong outlet or a 4-prong non-locking outlet, it is your personal responsibility to have a qualified electrician replace it with a properly grounded, independent 4-prong locking wall outlet. Do not remove the ground prong from the plug and do not use an adapter plug. After plugging in, twist the plug clockwise to lock it into place. Failure to follow these instructions may result in death, electric shock, or fire.
 - To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.
 - Make sure the power switch is in the "OFF" position before plugging in or unplugging the appliance to reduce the risk of electric shock.
 - Do not use an extension cord.
 - Do not use an appliance with a damaged power cord. The power cord should not be altered, jerked, bundled, weighed down, pinched, or tangled. Such actions could result in electric shock or fire. To unplug the appliance, be sure to pull the plug, not the cord, and do not jerk the cord.
 - The GREEN ground wire in the factory-installed power cord is connected to the appliance. If it becomes necessary to remove or replace the power cord, be sure to connect the power cord's ground wire.
- Usually an electrical permit and services of a licensed electrician are required.
 - The maximum allowable voltage variation is ± 10 percent of the nameplate rating.

G. Final Checklist

- 1) Is the appliance level?
- 2) Have the front casters been locked?
- 3) Is the appliance in a site where the ambient temperature is as specified below all year around?
 - Refrigerators and Solid Door Freezers 45°F to 100°F (7°C to 38°C)
 - Glass Door Freezers 45°F to 80°F (7°C to 27°C)
- 4) Have the minimum clearance requirements specified below been met?

Model	Side	Top	Rear
Refrigerators and Solid Door Freezers	3" (8 cm)	10" (25 cm)	0
Glass Door Freezers		12" (31 cm)	

- 5) Have the shipping carton, tape, and packing material been removed from the appliance? Has the protective plastic film been removed from the exterior panels on all models and from the interior door panels on solid door models?
- 6) Have the appliance and accessories been checked for shipping damage?
- 7) Has the power supply voltage been checked or tested against the nameplate rating? Is the power supply a properly grounded, independent wall outlet? Does the electrical connection meet all national, state, and local code and regulation requirements.
- 8) Has the optional overflow pan (if applicable) been properly installed?
- 9) Have the refrigerant lines been checked to make sure they do not rub or touch other lines or surfaces? Has the condenser fan blade been checked to make sure it turns freely? Is the compressor securely attached?
- 10) Have the shelves been properly installed?
- 11) Has the end user been given the instruction manual, and instructed on how to operate the appliance and the importance of the recommended periodic maintenance?
- 12) Has the end user been given the name and telephone number of an authorized service agent?
- 13) Has the warranty card been filled out and forwarded to the factory for warranty registration?

II. Operating Instructions

A. Important Notes About Usage

WARNING

- Only qualified service technicians should install and service this appliance.
- Failure to install, operate, and maintain the appliance in accordance with this manual may adversely affect safety, performance, component life, and warranty coverage.
- To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.
- Do not splash, pour, or spray water directly onto or into the appliance. This might cause short circuit, electric shock, corrosion, or failure.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be properly supervised around this appliance.
- Do not climb, stand, or hang on the appliance or door or allow children or animals to do so. Do not climb into the appliance or allow children or animals to do so. Death or serious injury could occur or the appliance could be damaged.
- Be careful not to pinch fingers when opening and closing the door. Be careful when opening and closing the door when children are in the area.
- Open and close the doors with care. Doors opened too quickly or forcefully may cause injury or damage to the appliance or surrounding equipment.
- Do not use combustible spray or place volatile or flammable substances in or near the appliance. They might catch fire.
- Keep the area around the appliance clean. Dirt, dust, or insects in the appliance could cause harm to individuals or damage to the equipment.
- Do not throw anything onto the shelves or load any single shelf with more than 120 lb. (54.5 kg) of product. They might fall off and cause injury.
- Do not place anything on top of the appliance. Foreign objects or moisture could enter the appliance and result in electric shock or fire.
- This appliance is designed only for temporary storage of food. Employ sanitary methods. Use for any other purposes (for example, storage of chemicals or medical supplies such as vaccine and serum) could cause deterioration of stored items.
- Do not block the cabinet air inlet or outlet, otherwise cooling performance may be reduced.
- Do not tightly pack the cabinet. Allow some space between items to ensure good air flow. Also allow space between items and interior surfaces.
- Do not put warm or hot foods in the cabinet. Let them cool first, or they will raise the cabinet temperature and could deteriorate other foods in the cabinet or overload the appliance.

⚠ WARNING, continued

- All foods should be wrapped in plastic film or stored in sealed containers. Otherwise foods may dry up, pass their smells onto other foods, cause frost to develop, result in poor appliance performance, or increase the likelihood of cross-contamination. Certain dressings and food ingredients, if not stored in sealed containers, may accelerate corrosion of the evaporator, resulting in failure.
- Do not store items near the air outlet. They might freeze up and crack or break causing a risk of injury or contamination of other food.

NOTICE

- Protect the floor when moving the appliance to prevent damage to the floor.
- Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction. Blockage of airflow could negatively affect performance and damage the appliance.
- To prevent deformation or cracks, do not spray insecticide onto the plastic parts or let them come into contact with oil.
- To avoid damage to the gasket, use only the door handle when opening and closing.
- Do not leave the doors open.

B. Startup

⚠ WARNING

All parts are factory-adjusted. Improper adjustments may adversely affect safety, performance, component life, and warranty coverage.

IMPORTANT

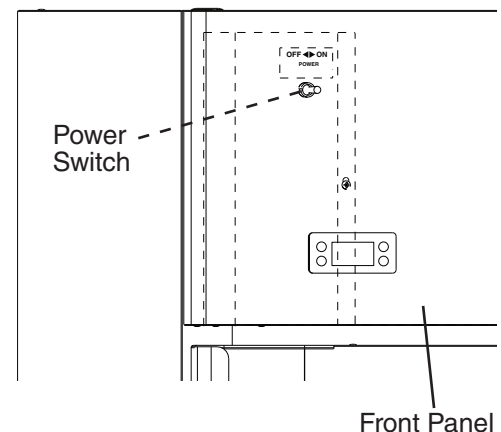
At startup, there is a slight delay before the compressor starts.

- 1) Reach over the front panel to access the power switch—located on the front of the control box. See Fig. 4. Make sure the power switch is in the "OFF" position.

WARNING! To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.

- 2) Plug the appliance into the electrical outlet.
- 3) Move the power switch to the "ON" position to start the cool-down process.
- 4) Allow the appliance to cool down prior to loading it with food products.

Fig. 4



C. Controls and Adjustments

1. Temperature Display

The cabinet temperature is displayed on the control module. See Fig. 5. The display default is °F, but it can be changed to read °C. To change, see "II.C.3. Changing the Temperature Display Scale (°F or °C)."

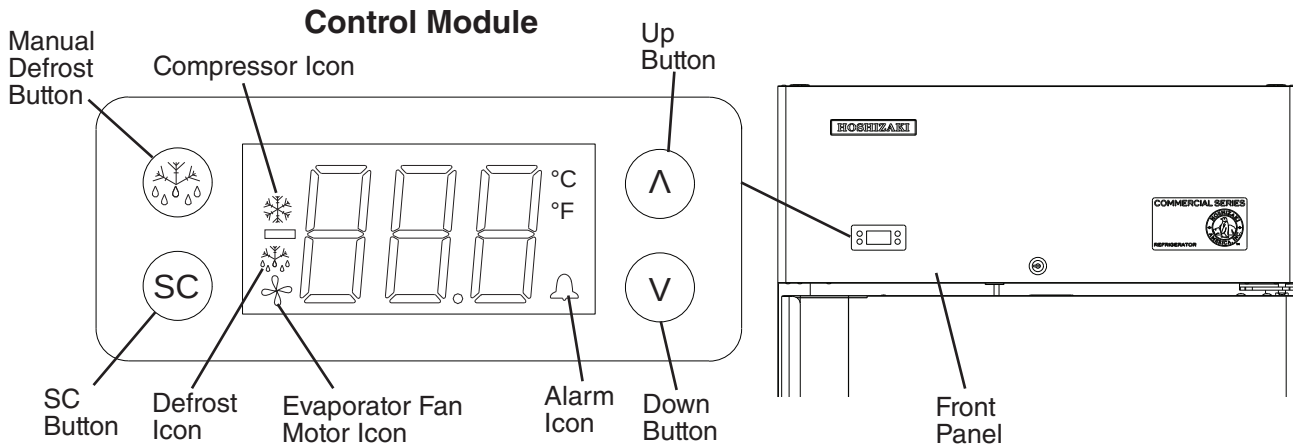


Fig. 5

2. Adjusting the Temperature Setpoint

The temperature setpoint is the value for the average cabinet temperature. The temperature differential for the compressor to turn on and off is $\pm 3^{\circ}\text{F}$ ($\pm 1.7^{\circ}\text{C}$) of the temperature setpoint. For example, for a refrigerator temperature setpoint of 36°F (2°C), the compressor comes on at 39°F (3.7°C), and the compressor goes off at 33°F (0.3°C). If necessary, adjust the temperature setpoint temperature as follows:

- 1) To change the temperature setpoint, press and hold the up button briefly and then release. The current temperature setpoint appears. Press the up or down button until the desired value is displayed. After a few seconds, the display returns to the current cabinet temperature and the temperature setpoint is saved. **NOTICE! Do not adjust the temperature setpoint more than 2°F (1°C) at a time. Allow the temperature to stabilize for a minimum of 8 hours before making further temperature setpoint adjustments.**
- For refrigerators, the temperature setpoint is adjustable between 34°F and 52°F (1°C and 11°C). The factory default is 36°F (2°C).
 - For freezers, the temperature setpoint is adjustable between -10°F and $+12^{\circ}\text{F}$ (-24°C and -11°C). The factory default is -4°F (-20°C).

3. Changing the Temperature Display Scale (°F or °C)

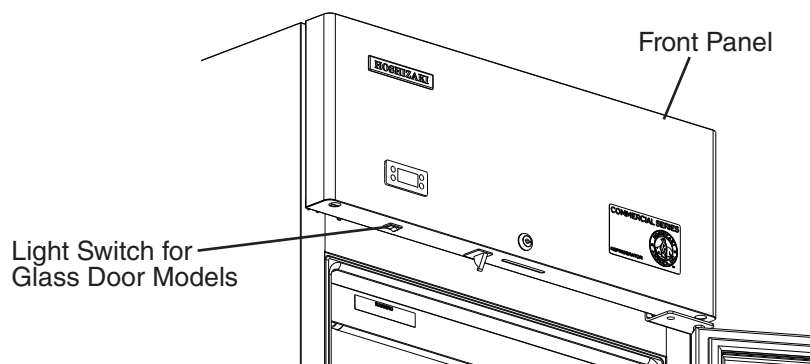
To change the temperature display scale, follow the steps below. The factory default is °F.

- 1) Press and hold both the up and down buttons for 5 seconds. "PAS" appears briefly in the display, then "000" appears.
- 2) Press the up button to change the display to "001".
- 3) Press the SC button. "EHE" appears in the display. Press the up or down button until "diS" is displayed.
- 4) Press the SC button. "CFu" appears in the display. Press the SC button again. The current temperature display scale setting appears. Press the up or down button to change the temperature display scale.
- 5) Press the SC button to save the setting. Wait 1 minute or press the manual defrost button twice to return to the temperature display.

4. Light Switch for Glass Door Models

Glass door models feature a fluorescent light that is controlled by a light switch located on the bottom of the front panel. See Fig. 6.

Fig. 6



D. Control Module Icons

Control module icons inform you of energized components and if the appliance is in alarm.

Control Module Icons	
Icon	Meaning
	Compressor Compressor running.
	Defrost Appliance is in defrost cycle. See "II.E. Defrost" for details.
	Evaporator Fan Motor (Icon is Applicable to Freezers Only) Evaporator fan motor is running. Evaporator fan motor de-energizes when door is open.
	Alarm Appliance is in alarm. See "II.G. Alarm Safeties" for details.

E. Defrost

1. Refrigerators

Refrigerators use an off-cycle, time-initiated defrost and defrost once every 2 hours. When the defrost thermistor warms to 40°F (4.4°C), defrost terminates. The minimum defrost time is 20 minutes and the maximum defrost time is 1 hour. Cabinet temperature is displayed during defrost.

2. Freezers

Freezers use a heated, temperature/time-initiated defrost. Once the defrost thermistor cools to 32°F (0°C), the 4-hour cumulative compressor run timer starts. When the 4-hour cumulative compressor run timer terminates, defrost begins. Cabinet temperature is not displayed during defrost; "dEF" is displayed in its place. When the defrost thermistor warms to 59°F (15°C), defrost terminates. A 3-minute compressor delay timer, a 7-minute evaporator fan motor delay timer, and an 18-minute temperature display delay timer start. As the delay timers terminate, the related components energize. Note that the 7-minute evaporator fan motor delay time is a maximum; if the defrost thermistor cools to 25°F (-3.9°C) before the 7-minute evaporator fan motor delay timer terminates, the evaporator fan motor will energize. Freezers have a minimum defrost interval of 4 hours. The minimum defrost time is 5 minutes and the maximum defrost time is 1 hour.

3. Manual Defrost

To initiate a manual defrost, press the manual defrost button.

F. Food Storage

WARNING

- This appliance is designed only for temporary storage of food. Employ sanitary methods. Use for any other purposes (for example, storage of chemicals or medical supplies such as vaccine and serum) could cause deterioration of stored items.
- Do not block the cabinet air inlet or outlet, otherwise cooling performance may be reduced.
- Do not tightly pack the cabinet. Allow some space between items to ensure good air flow. Also allow space between items and interior surfaces.
- Do not put warm or hot foods in the cabinet. Let them cool first, or they will raise the cabinet temperature and could deteriorate other foods in the cabinet or overload the appliance.
- All foods should be wrapped in plastic film or stored in sealed containers. Otherwise foods may dry up, pass their smells onto other foods, cause frost to develop, result in poor appliance performance, or increase the likelihood of cross-contamination. Certain dressings and food ingredients, if not stored in sealed containers, may accelerate corrosion of the evaporator, resulting in failure.
- Do not store items near the air outlet. They might freeze up and crack or break causing a risk of injury or contamination of other food.

G. Alarm Safeties

Alarm signals are designed to protect the appliance and food product. These alarms give information or warnings in the event the appliance is operating out of acceptable parameters. Should one of the alarms occur, follow the instructions in the table below to address the alarm. The alarm code and alarm icon flash with audible alarm.

Alarm Signals		
Alarm Code	Problem	Corrective Action/Reset Details
E01	Cabinet Thermistor Malfunction Alarm Cabinet thermistor has failed.	Call a qualified service technician. Beeps for 10 seconds, then silent for 50 seconds. To silence the alarm, press and release the up button. Appliance cycles 5 min. on, 5 min. off.
E02	Defrost Thermistor Malfunction Alarm Defrost thermistor has failed.	Call a qualified service technician. Beeps for 10 seconds, then silent for 50 seconds. To silence the alarm, press and release the up button. Appliance cycles on and off with cabinet thermistor.
Hi	High Temperature Alarm Refrigerator: Cabinet temperature has remained above 57°F (13.9°C) for more than 2 hours. Freezer: Cabinet temperature has remained above 26°F (-3.3°C) for more than 2 hours.	If obvious corrections such as closing doors and cleaning the air filter and/or condenser do not bring temperature back in range, call a qualified service technician. Beeps for 10 seconds, then silent for 50 seconds. To silence the alarm and clear "Hi" from the display, press and release the up button. The alarm icon stays on. Automatically resets when temperature returns to normal.
Lo	Low Temperature Alarm Refrigerator: Cabinet temperature has remained below 26°F (-3.3°C) for more than 2 hours. Freezer: Cabinet temperature has remained below -23°F (-30.6°C) for more than 2 hours.	If obvious corrections do not bring the temperature back in range, call a qualified service technician. Beeps for 10 seconds, then silent for 50 seconds. To silence the alarm and clear "Lo" from the display, press and release the up button. The alarm icon stays on. Automatically resets when temperature returns to normal.

H. Safety Devices

1. Compressor External or Internal Overload

If combined temperature/amperage value is above the limit specified by the compressor manufacturer, the compressor overload operates independently to turn off the compressor. The compressor overload de-energizes the compressor until the temperature/amperage value returns to an acceptable level.

2. Short-Cycle Protection

There is a 2-minute minimum off-time and on-time for the compressor.

Note: Time may vary with compressor overload or high-pressure switch activation.

3. High-Pressure Switch

If pressure on the high-side of the appliance exceeds Hoshizaki specifications, the high-pressure switch activates and interrupts the compressor circuit, de-energizing the compressor until the pressure returns to an acceptable level.

I. Cooling Performance

Be sure the appliance is properly installed and located for optimum cooling performance. If cooling performance is not at its optimum level, check the following items:

- Door(s) opened too often.
- Door(s) left open. Close.
- Cabinet too tightly packed or cabinet air inlet/outlet blocked. Allow some space between items to ensure good air flow.
- Warm or hot foods inside. Take them out until they cool down more.
- Ambient temperature too high. Avoid installation near high heat producing equipment or exposure to direct sunlight.
- Temperature setpoint too high. Readjust it to a lower temperature.
- Appliance in defrost cycle. The cabinet temperature may rise temporarily during the defrost cycle, but this will not affect the food inside.

J. Cabinet Condensation

In the event condensation develops on the cabinet exterior, check the following items:

- Door(s) left open. Close.
- Ambient humidity too high. In high humidity areas it may be necessary to wipe off the cabinet frame occasionally.

III. Cleaning and Maintenance Instructions

A. Cleaning

WARNING

- Before cleaning the appliance, move the power switch to the "OFF" position and unplug the appliance to prevent electric shock by unexpected entrance of water into the appliance or injury by moving parts. To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.
- Before cleaning the appliance, move all foods into another clean refrigerator or freezer.
- Do not splash water directly onto the appliance. This might cause short circuit, electric shock, corrosion, or failure.
- Before using a sanitizer such as inert soap and sodium hypochlorite (chlorine bleach), thoroughly read the manufacturer's instructions on its proper usage.

NOTICE

- To prevent damage to the plastic surfaces, do not use the following: hot water, thinner, benzine, alcohol, petroleum, soap powder, polishing powder, alkaline cleaner, acid, scouring pad and especially those strong cleaners for use on a ventilating fan or a cooking range. Also, to prevent corrosion, do not use sodium hypochlorite (chlorine bleach) on the stainless steel surfaces.
- Use a clean cloth for cleaning.

1. Exterior

Wipe the exterior occasionally with a clean, soft cloth. Use a damp cloth containing a neutral cleaner to wipe off oil or dirt buildup.

2. Cabinet Interior

Spills should be wiped up promptly to avoid unpleasant odors. The cabinet interior should be cleaned periodically with a mild soap or detergent and warm water. **NOTICE! Do not use hot water to clean the cabinet interior.**

3. Door Gaskets

Door gaskets should be cleaned regularly with mild soap and warm water to remove dirt and grease.

4. Shelves

Remove and clean regularly.

5. Glass Door

Wipe occasionally with a clean, soft cloth. Use a damp cloth containing a neutral cleaner to wipe off oil or dirt buildup.

B. Maintenance

WARNING

- Move the power switch to the "OFF" position and unplug the appliance before performing maintenance to prevent electric shock or injury by moving parts. To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.
- Before performing maintenance, move all foods into another clean refrigerator or freezer.

1. Condenser

Check the condenser once a year and use a brush or vacuum cleaner to clean the condenser as required.

2. Power Supply Connection

If the plug or power cord is damaged, contact your local Hoshizaki service representative or local Hoshizaki distributor immediately and ask for repairs.

All other maintenance or service on this appliance should be performed in accordance with the Hoshizaki Service Manual by a qualified service technician.

IV. Preparing the Appliance for Periods of Non-Use

When shutting down the appliance for periods of non-use, follow the instructions below.

 WARNING
--

Prevent the doors from closing to reduce the risk of children getting trapped.
--

<i>NOTICE</i>

Clean the appliance. See "III.A. Cleaning" for details.

- 1) Before shutting down the appliance, move the stored food into another refrigerator or freezer.
- 2) Move the power switch to the "OFF" position and unplug the appliance.
WARNING! To reduce the risk of electric shock, do not touch the power switch or plug with damp hands.

V. Disposal

When disposing of the appliance, follow the instructions below.

 WARNING
--

Remove the door to reduce the risk of children getting trapped. Leave the shelves in place so that children may not easily climb inside.
--

This appliance contains refrigerant and must be disposed of in accordance with applicable national, state, and local codes and regulations. Refrigerant must be recovered by properly certified service personnel.

HOSHIZAKI AMERICA, INC.

618 Hwy. 74 S., Peachtree City, GA 30269 USA	TEL (770) 487-2331	FAX (770) 487-3360	www.hoshizaki.com	1A3470-011
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HOSHIZAKI AMERICA, INC.
MANUFACTURER'S LIMITED LABOR AND PARTS WARRANTY
REFRIGERATORS AND FREEZERS

HOSHIZAKI AMERICA, INC. A Georgia corporation with its principal offices at 618 Hwy. 74 South, Peachtree City, Georgia 30269, ("Hoshizaki") warrants to the original owner/user that any Refrigerator or Freezer manufactured by Hoshizaki ("the products") shall be free of defects in material or workmanship under normal and proper use and maintenance service as specified by Hoshizaki and upon proper installation and start-up in accordance with the instruction manual supplied with the Product. Proper warranty registration must be completed within 30 days of the original installation date to validate the product warranty. In the event that proper registration has not been completed, the warranty shall begin from the factory ship date or the distributor sold date, whichever is available. The owner/user is responsible to provide valid proof of installation if the unit is installed more than 180 days from the current registration start date. Regardless of the actual installation date, the warranty start date shall not exceed twenty-four (24) months from the factory ship date. **The obligation of Hoshizaki and the rights and remedies of the owner/user under this warranty are exclusively limited to (1) the repair or replacement, including labor charges, of parts or assemblies that in Hoshizaki's opinion are defective within two years after the original date of installation; and (2) the repair or replacement, excluding labor charges, of a compressor that in the opinion of Hoshizaki is defective during the three year period after the two year warranty period.** The labor warranty shall include standard straight time labor charges at the product location only and shall exclude charges for travel time, mileage or other premium charges. Any labor service required to fulfill the warranty obligation must be performed by a refrigeration service company qualified and accepted by Hoshizaki and/or the local Hoshizaki distributor.

This warranty does not include parts or labor coverage for component failure or other damage resulting from:

- * External electrical power failure or miswiring to Product for any reason.
- * Adverse operating conditions as set forth in the owner/user manual for the Product.
- * Failure to clean and/or maintain Product as set forth in the owner/user manual for the Product.

All claims for labor or parts must be made through the local Hoshizaki distributor. The defective part for which labor reimbursement is claimed, together with the service invoice, must be returned to the Hoshizaki distributor within fifteen days from the date of service to be eligible for labor and parts warranty coverage. All replacement parts must be approved Hoshizaki parts. Incidents of failure that do not require replacement of a part shall be explained in sufficient detail on the service invoice to identify the failure. All claims shall include the product model number, serial number, original date of installation and customer identification.

The foregoing warranty shall not apply to (1) any part or assembly (a) that has been altered, modified, or changed, (b) that has been subjected to misuse, abuse, neglect or accidents, or (c) any Product on which the serial or model number has been removed or altered, or (2) any Product that has been installed and/or maintained inconsistent with Hoshizaki's technical publications, or (3) any Product that has been installed or is located outside the standard warranty coverage area. Warranty valid in United States, Canada, Puerto Rico, and U.S. territories. Contact factory for warranty in other countries.

The five year compressor parts warranty shall not apply when the Product refrigeration system is modified with a condenser, heat reclaimed device, or parts and assemblies other than those manufactured by Hoshizaki unless Hoshizaki has accepted modifications for specific installations in writing.

"LIMITATION OF LIABILITY AND OTHER WARRANTIES"

Hoshizaki assumes no liability for misuse or inadequate maintenance of the Product. **In no event shall the user be entitled to recover incidental or consequential damages, including but not limited to, damages for inconvenience, food loss, rental or replacement equipment, loss of profits, or other commercial loss.**

Warranties stated above are the only warranties made in connection with the sale and distribution of the Products. ANY AND ALL OTHER EXPRESSED, STATUTORY AND IMPLIED WARRANTIES APPLICABLE TO THE PRODUCT, INCLUDING, WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE EXPRESSLY DISCLAIMED.

The warranty information set forth above shall be governed by and construed in accordance with the laws of the State of Georgia and, if applicable, the laws of the United States of America. The warranty, as stated, is extended only to the original owner/user and is not assignable.



HOSHIZAKI AMERICA, INC.

618 Hwy. 74 South, Peachtree City, Georgia 30269

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